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SAFETY PRECAUTIONS

WARNING: The chassis of this receiver is connected to one side of the AC line during operation, service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment. The following precautions must be observed:

1. An isolation transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Comply with all caution and safety-related notes provided on cabinet back, inside the cabinet, on the chassis or the picture tube.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as; control knobs, adjustment covers or shields, barriers, isolation resistor-capacitor networks etc.
4. before replacing the back cover of the set, thoroughly inspect inside the cabinet to see that no stray parts or tools have been left inside and check the position of the AC interlock to confirm a proper connection.

Before returning any television to the customer, the service technician must perform the following safety checks and be sure that it is completely safe to operate without danger of electrical shock.

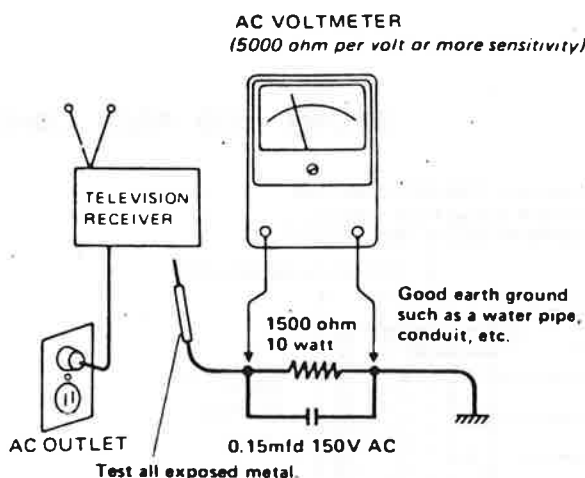
ANTENNA COLD CHECK

With the AC plug removed from the 120V AC outlet, place a jumper across the two blades. Turn the television AC switch on. Using an ohmmeter, connect one lead to the jumpered AC plug and touch the other lead to each exposed antenna terminal (UHF and VHF antenna terminals). The resistance must measure between 1M ohm and 5.2M ohm. Any resistance value below or above this range indicates an abnormality which requires corrective action. Repeat the test with the AC switch in the OFF position.

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having 5000 ohms per volt or more sensitivity. Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 mfd 150V AC capacitor between a known good earth ground (waterpipe, conduit, etc.) and all exposed metal parts of the cabinet (antennas, handle bracket, metal cabinet, screwheads, metal overlays, control shafts, etc.). Measure the AC voltage across the 1500 ohm resistor. The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3 volts. A reading exceeding 0.3 volts indicates that a dangerous potential exists, the fault must first be located and corrected. Repeat the above test with the receiver power plug reversed. **NEVER RETURN A RECEIVER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.**

Reading should not exceed 0.3V.



Voltmeter Hook-up for Leakage Current Check

X-RADIATION PRECAUTIONS

The primary source of X-RADIATION in a solid-state television receiver is the picture tube. The picture tube is specially constructed to limit X-RADIATION emissions. For continued X-RADIATION protection, the replacement tube must be the same type as the original including suffix letter. Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specified limits. Refer to the X-RADIATION WARNING NOTE on the CHASSIS SCHEMATIC in this service manual for specific high voltage limits. If high voltage exceeds specified limits, check the components, specified on the chassis schematic diagram and take necessary corrective action. Carefully follow the instructions for +120 volt power supply adjustment, and high voltage adjustments to maintain the high voltage within specified limits.

HIGH VOLTAGE HOLD-DOWN TEST

To prevent X-RADIATION from picture tube due to excessive high voltage, a HOLD-DOWN circuit is provided in the high voltage circuit. Every time the receiver is serviced, the high voltage HOLD-DOWN circuit must be tested for proper operation. Refer to the "HIGH VOLTAGE HOLD-DOWN TEST" in service adjustments.

PRODUCT SAFETY NOTICE

Product safety should be considered when a component replacement is made in any area of a receiver. Components indicated by a star (★) in the parts list and the schematic diagram designate components in which safety can be of special significance. It is particularly recommended that only parts designated on the parts list in this manual be used for component replacement designated by a star. No deviations from resistance wattage or voltage ratings may be made for replacement items designated by a star.

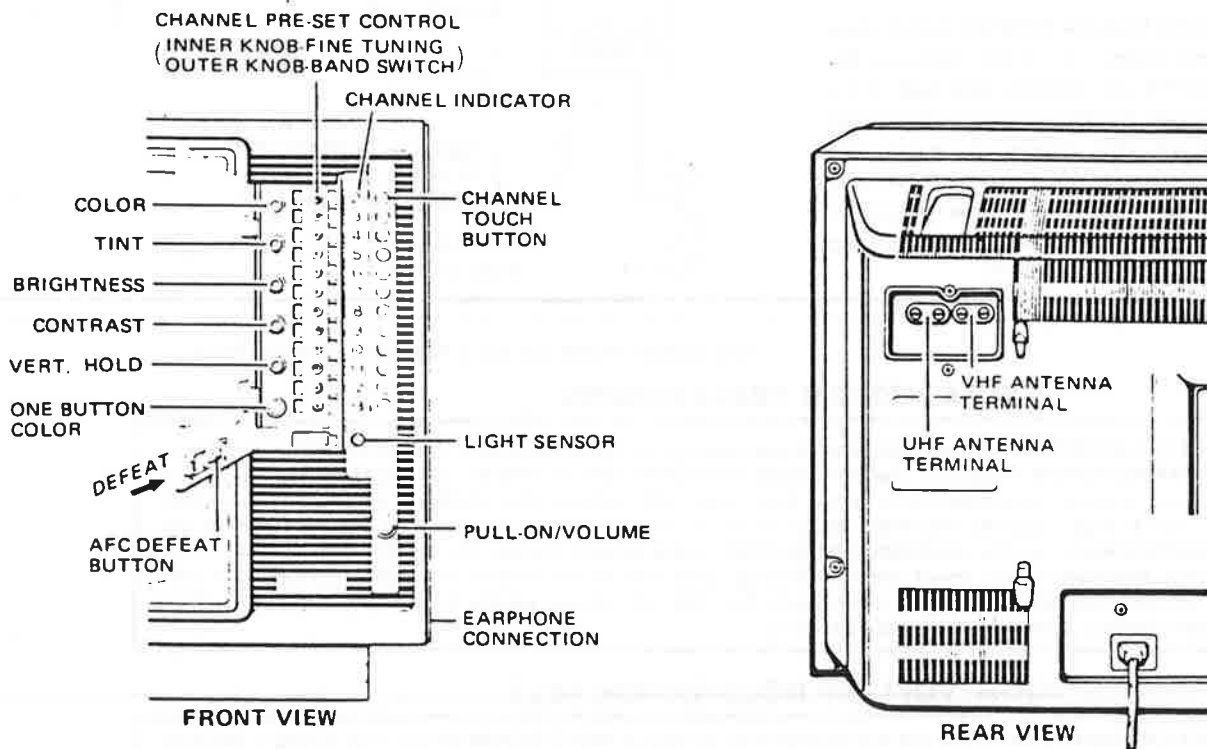
Sears · DIVISION 57 TECHNICAL DATA SHEET TELEVISION

WARNING!! To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice

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FRONT AND REAR CONTROL VIEWS

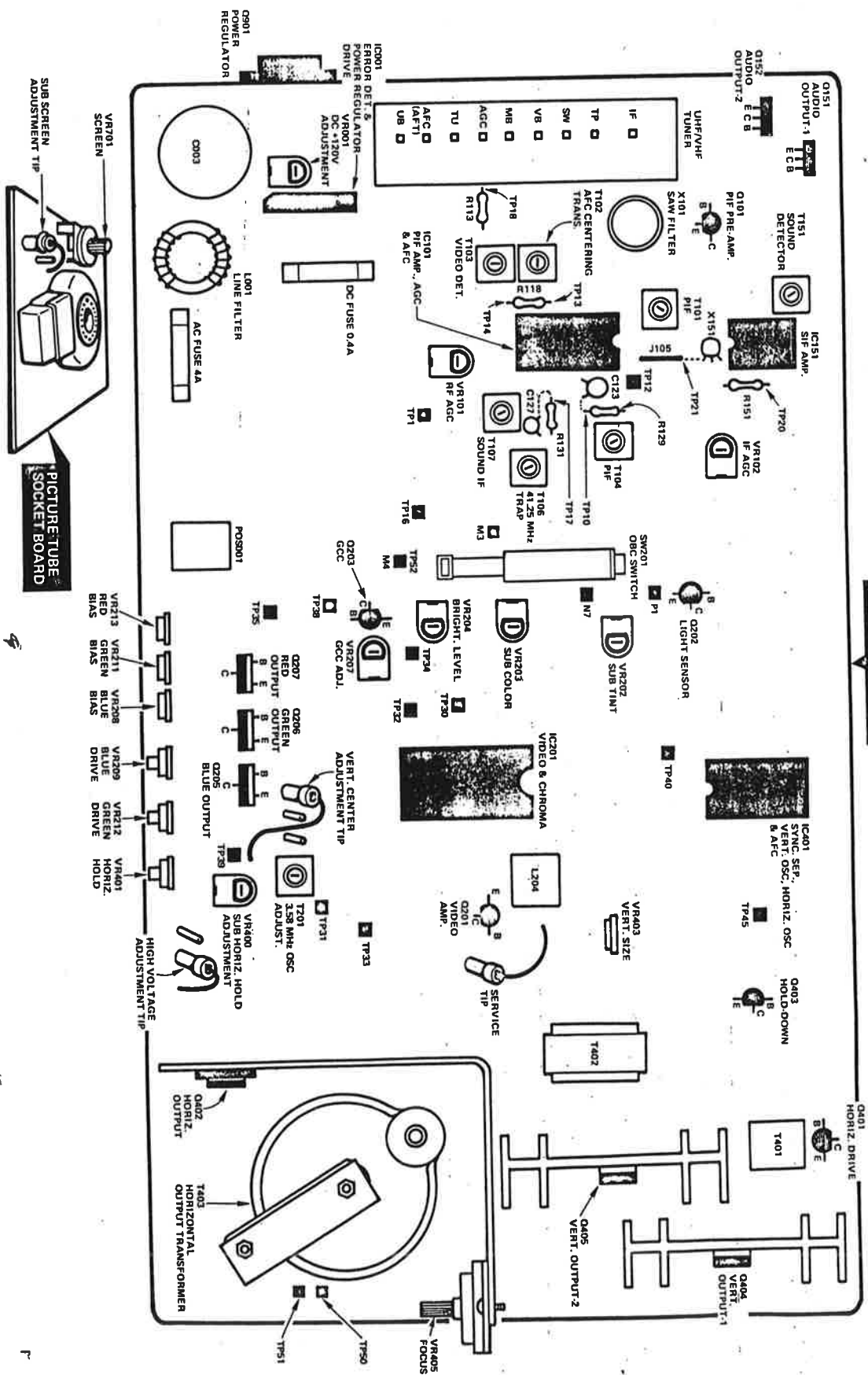


Refer to the Div. 57 Authorized Price List 528 for current selling prices, availability and ordering information.
Service Flash References

Sears, Roebuck and Co.

COMPONENT AND TESTPOINT LOCATIONS

MAIN SIGNAL BOARD



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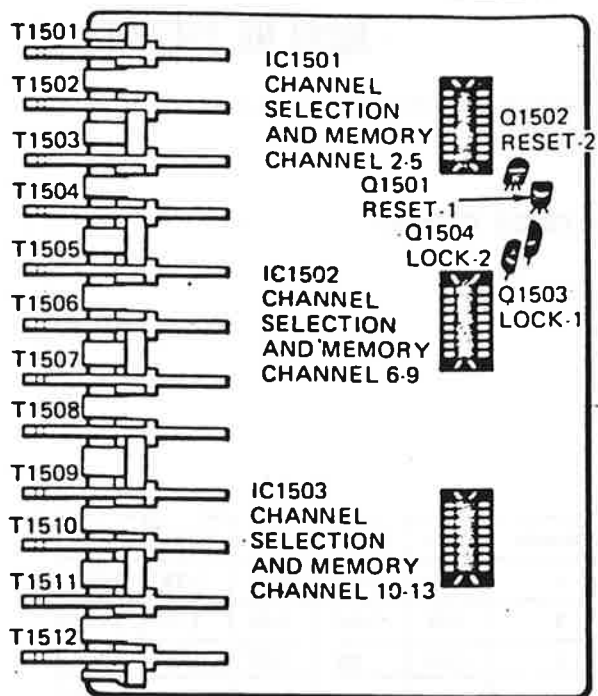
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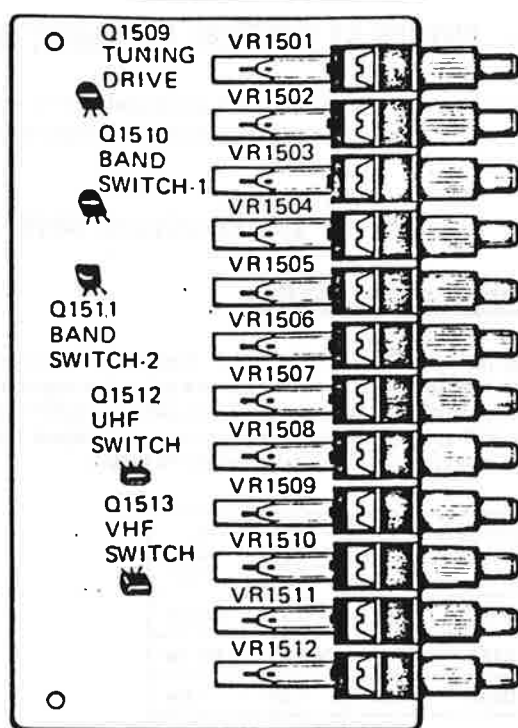
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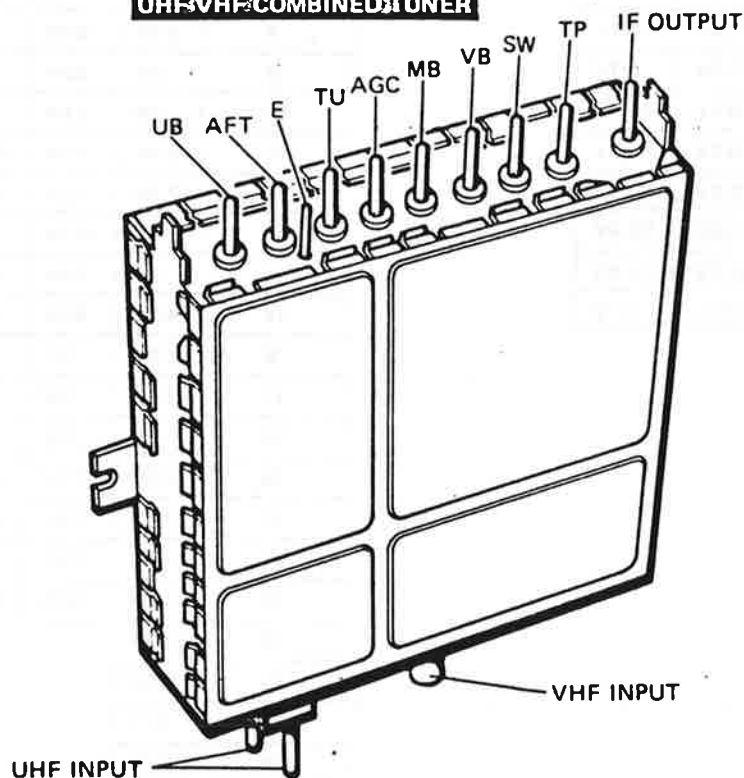
MEMORY CIRCUIT BOARD



PRE-SET TUNING CIRCUIT BOARD



UHF/VHF COMBINED TUNER



WARNING!!

To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

TRANSISTOR AND IC'S VOLTAGE CHART**MAIN SIGNAL CIRCUIT BOARD****NOTES:**

1. Voltage reading taken with "VOM" from point indicated to chassis ground. Voltage reading taken using a color bar signal VHF channel 11, all controls at normal, OBC, switch in "OFF" position, line voltage 120 volts. Some voltages may vary with signal strength.
2. Voltage marked with * are taken with "VTVM".

DEVICE	E	B	C
Q101	2.2V	2.9V	12V
Q151	0V	0.6V	44.8V
Q152	45.5V	45.3V	116.3V
Q201	7.9V	7.2V	1.9V
Q202	11V	11.5V	12V
Q203	7.5V	7.7V	7.4V
Q205	8V	7.9V	152V
Q206	8V	7.8V	167V
Q207	8V	7.7V	172V
Q401	0V	-0.5V	35.7V
Q402	0V	-0.1V	*117V
Q403	19.6V	19.8V	0V
Q404	0V	0.6V	53.5V
Q405	54V	54.3V	114.8V
Q901	121V	122V	147V

TERMINAL	IC201	IC101	IC401	IC151	IC001
1	9.3V	3.3V	-0.8V	1.7V	120V
2	1.3V	3.3V	6.6V	1.7V	117V
3	4.4V	0V	1.3V	0V	122V
4	7.3V	5.3V	1.1V	0V	113V
5	6V	-	0.6V	11.5V	108V
6	0.4V	12V	0V	3.5V	121V
7	5.8V	6V	3.5V	6.5V	120V
8	9.7V	3.2V	0V	5.9V	127V
9	3V	5.8V	1.9V	3.9V	120V
10	3V	5.8V	6.5V	3.9V	
11	12.3V	3.2V	12.4V	-	
12	7.7V	12V	0.2V	5.1V	
13	7.8V	11.4V	4V	6.2V	
14	8V	4.9V	6.5V	1.5V	
15	4.9V	5.5V	0.7V		
16	4.9V	12V	-		
17	9.8V	12V	1V		
18	8V	12V	-		
19	9.6V	2.8V	-0.4V		
20	7.1V	2.7V	4.8V		
21	3.5V	6.2V	2.3V		
22	4.2V	5.1V	12.5V		
23	11.2V				
24	3.3V				
25	3.7V				
26	4.4V				
27	6.8V				
28	0V				

MEMORY AND PRE-SET TUNING BOARD

RELATED TERMINALS WITH CHANNEL

CHANNEL	2	3	4	5	6	7	8	9	10	11	12	13
TERMINALS	7, 11	6, 12	5, 13	4, 14	7, 11	6, 12	5, 13	4, 14	7, 11	6, 12	5, 13	4, 14
DEVICE	IC1501				IC1502				IC1503			

TERMINAL	IC1501	IC1502	IC1503
1	—		
2	—		
3	0V		
4	0V (Channel operated) 31V (Channel not operated)		
5			
6			
7			
8	3V		
9	—		
10	13.8V		
11			
12			
13			
14			
15	4V		
16	—		

DEVICE	E	B	C
Q1501	0V	0.6V	1.25V
Q1502	0.6V	1.25V	3V
Q1503	0V	0.6V	1.24V
Q1504	0.6V	1.24V	3.69V

Q1509

E	0.2V ~ 30.8V
B	0.6V ~ 30V
C	31.5V

Varies with Fine Tuning

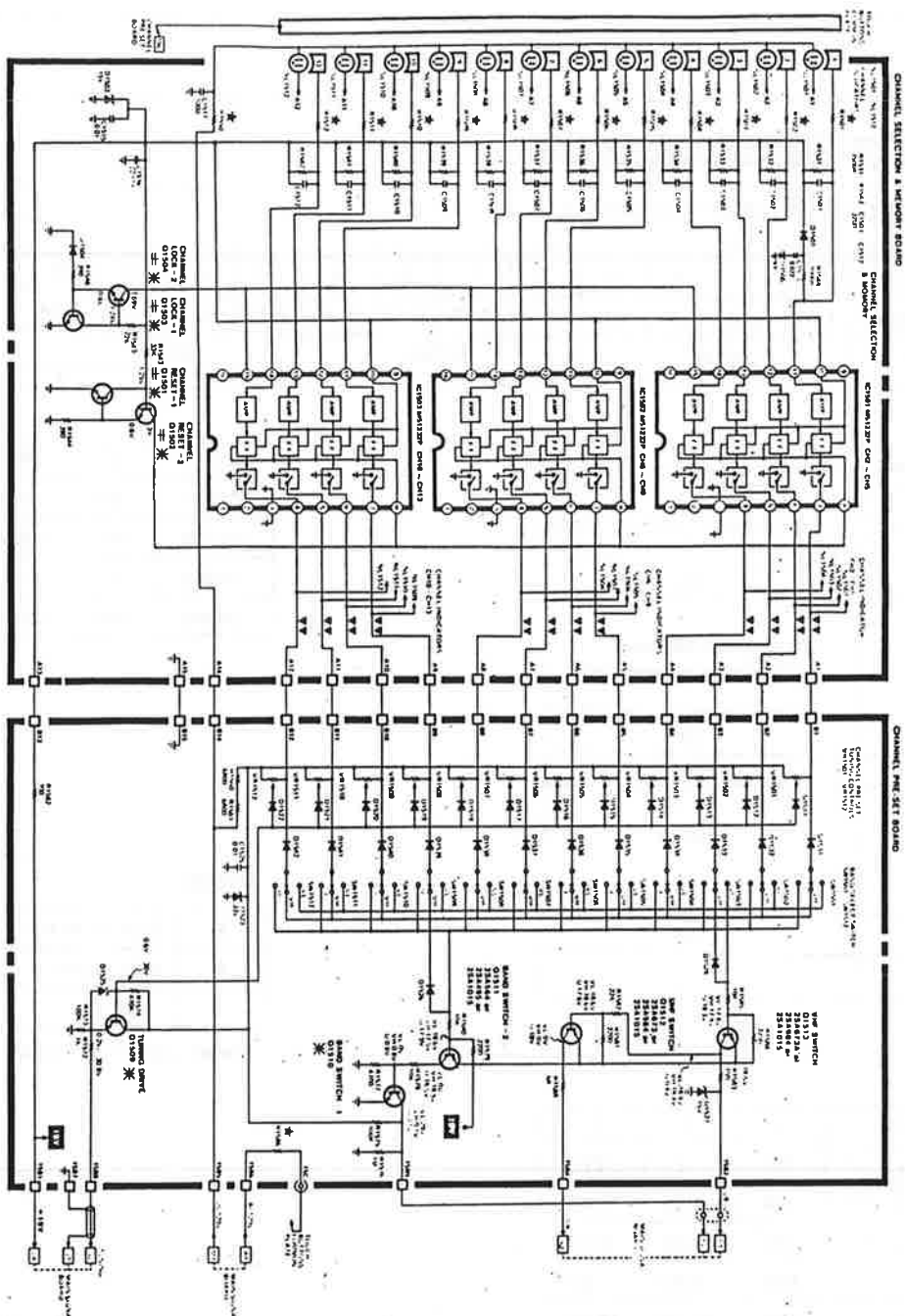
DEVICE		E	B	C
Q1510	*	0V	0V	29V
	**	0V	0.8V	0.1V
	***	0V	0.8V	0.1V
Q1511	*	19V	18.6V	0V
	**	19V	17.5V	18.5V
	***	19V	17.5V	18.5V
Q1512	*	19V	18.6V	0V
	**	19V	18.6V	0V
	***	19V	17.6V	18V
Q1513	*	19V	17.8V	18.4V
	**	19V	17.8V	18.4V
	***	19V	18.3V	0.4V

NOTE

- *Band Switch VL
- **Band Switch VH
- ***Band Switch U

SCHEMATIC DIAGRAMS

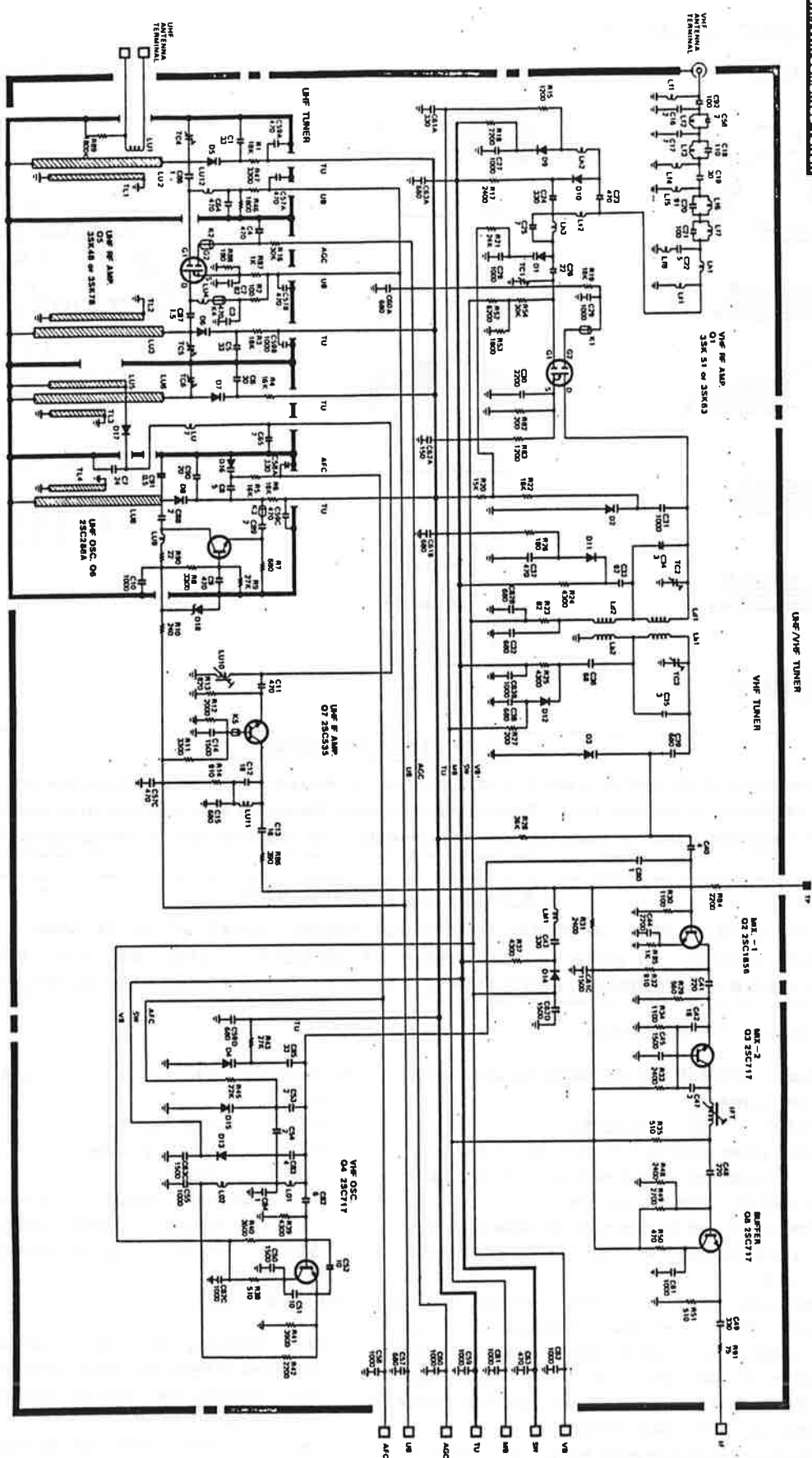
MEMORY AND PRESET TUNING CIRCUIT BOARD



MODEL NO. 564.421617Q2

To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

UHF/VHF TUNER

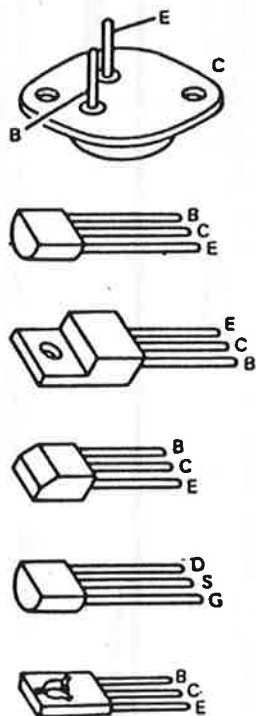


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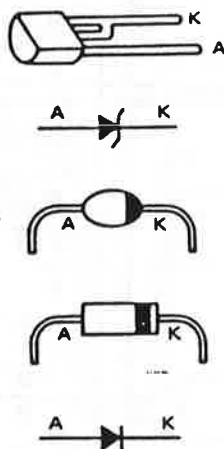
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SEMICONDUCTORS BASING

TRANSISTORS

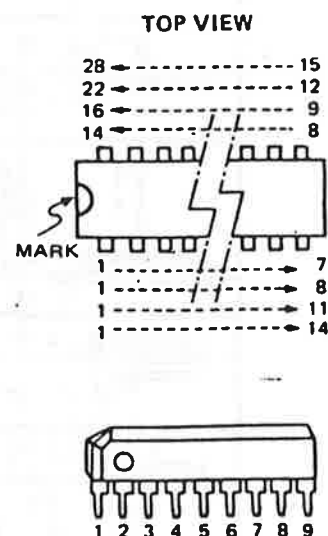


DIODES



B - BASE
C - COLLECTOR
E - EMITTER
G - GATE
D - DRAIN
S - SOURCE
A - ANODE
K - CATHODE

INTEGRATED CIRCUIT



PRODUCT SAFETY NOTICE

The components designated by a star (*) in this schematic diagram designates components whose value are of special significance to product safety. Should any component designated by a star need to be replaced, use only the part designated in the Parts List. Do not deviate from the resistance, wattage and voltage ratings shown.

X-RADIATION WARNING NOTE

THIS TV CONTAINS CRITICAL PARTS TO PROTECT AGAINST X-RADIATION. NOMINAL 2ND ANODE VOLTAGE IS 28.6KV AT ZERO BEAM CURRENT AT 120 VOLT AC LINE, AND MUST NOT EXCEED 29.1KV UNDER ANY VIEWABLE CONDITION. SEE PART 4 FOR HIGH VOLTAGE ADJUSTMENTS.

NOTES ON SCHEMATIC DIAGRAMS.

1. Semiconductors 2SC536 and 2SC945A are abbreviated with following symbols;
 ∇ 2SC536, $\ast$ 2SC945A.
2. All resistance values in ohms K = 1,000, M = 1,000,000. Resistance wattage less than 2 watt is not indicated on schematic diagrams, refer the parts list.
3. Unless otherwise noted in schematic all capacitor values less than 1 are expressed in mfd, and the values more than 1 are in pF.
4. Unless otherwise noted in schematic voltage reading taken with "VOM" from point indicated to chassis ground. Voltage reading taken using a color bar signal VHF channel 11, all controls at normal. OBC button in OFF (OUT) position. Line voltage 120 volts. Some voltages may vary with signal strength.
5. Waveforms were taken with color bar signal and controls adjusted for normal picture. Waveforms marked with $\ast$ may vary with signal strength.

6. Marks VL, VH and U are the position of the Band Switch.
 VL VHF Low Band
 VH VHF High Band
 U UHF Band
7. Voltage where the marked with ∇ are as follows;
 0V ... When the channel is selected.
 31V ... When the channel is not selected.

SERVICE NOTES;

1. When replacing parts on circuit boards, clamp the lead wires to terminals before soldering.
2. When replacing high wattage resistors on circuit board, keep the resistor body 10 mm (1/2") from circuit board.
3. Keep wires away from high voltage and high temperature components.

WARNING!!

To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

CHASSIS ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER. COMPONENTS INDICATED BY A STAR (★) IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS DESIGNATED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT DESIGNATED BY A STAR. NO DEVIATIONS FROM RESISTANCE WATTAGE, AND VOLTAGE RATINGS MAY BE MADE FOR REPLACEMENT ITEMS DESIGNATED BY A STAR.

NOTES: 700 Series Schematic Location Numbers are Located on Picture Tube Socket Board.
900 Series Schematic Location Numbers are Located off Circuit Board.
1500 Series Schematic Location Numbers are Located on Memory and Pre-Set Tuning Board.
Other Numbers are Located on the Main Signal Board.

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
INTEGRATED CIRCUITS			★ Q403	86-570-2 46-86546-3	2SA608A (F), Hold Down 2SA509 (O,Y)
IC001	46-13237-3	LA5112N, Error Det. & Power Regulator Drive	Q404	46-86646-3	2SC2073R (D,E), Vert. Output-1
IC101	46-13208-3	M5186P or M5186AP, PIF Amp., AGC & AFC	Q405	46-86646-3	2SC2073R (D,E), Vert. Output-2
IC151	13-29-6	LA1365, SIF Amp.	★ Q901	46-86590-3	2SC1050 (D,E,F), Power Regulator
IC201	46-13238-3	TA7608BP, Video and Chroma		46-86590-3	or 2SD198A (P,Q,R)
IC401	46-13239-3	LA1460, Sync. Sep., Vert. OSC, Horiz. OSC & AFC	Q1501	46-86513-3	2SC536 (F,G), Channel Reset
IC1501			Q1502	46-86513-3	or 2SC945A (P)
IC1502	46-13193-3	M51232P, Channel Selection & Memory	Q1503	46-86513-3	2SC536 (F,G), Channel Lock
IC1503			Q1504	46-86513-3	or 2SC945A (P)
TRANSISTORS			Q1509	46-86513-3	2SC945A (P,Q), Tuning Drive
Q101	46-86680-3	2SC2216, PIF Pre-Amp.	Q1510	46-86513-3	2SC945A (P,Q), Band Switch-1
Q151	46-86505-3	2SC2456, Audio Output-1	Q1511	46-86429-3	2SA564 (P,Q), Band Switch-2
	46-86505-3	or 2SC2568 (K,L,M)		86-570-2	or 2SA495 (O,Y)
Q152	46-86505-3	2SC2456, Audio Output-2		46-86679-3	or 2SA1015 (O,Y)
	46-86505-3	or 2SC2568 (K,L,M)	Q1512	86-423-2	2SA984 (E,F), UHF Switch
Q201	46-86679-3	2SA1015 (O,Y), Video Amp.		46-86679-3	or 2SA1015 (O,Y)
Q202	46-86513-3	2SC536 (E,F,G), Light Sensor		86-423-2	or 2SA673A (C)
	46-86513-3	or 2SC945A (P,Q)	Q1513	86-423-2	2SA984 (E,F), VHF Switch
Q203	46-86513-3	2SC536 (E,F,G), GCC		86-423-2	or 2SA673A (C)
	46-86513-3	or 2SC945A (P,Q)		46-86679-3	or 2SA1015 (O,Y)
Q205	46-86505-3	2SC1756 (C,D,E), Blue Output			
	46-86505-3	or 2SC1569LB (O,R,Y)			
	46-86505-3	or 2SC1507 (K,L,M)			
Q206	46-86505-3	2SC1756 (C,D,E), Green Output			
	46-86505-3	or 2SC1569LB (O,R,Y)			
	46-86505-3	or 2SC1507 (K,L,M)			
Q207	46-86505-3	2SC1756 (C,D,E), Red Output			
	46-86505-3	or 2SC1569LB (O,R,Y)			
	46-86505-3	or 2SC1507 (K,L,M)			
Q401	46-86648-3	2SC2228M Horiz. Drive			
	46-86648-3	or 2SC2229M			
★ Q402	46-86681-3	2SD870A, Horiz. Output			

Refer to the Div. 57 Authorized Price List 528 for current selling prices, availability and ordering information.

Service Flash References

Schematic Location	Part No.	Description
RESISTORS		
NOTE; All resistors $\pm 5\%$ and 1/4 watt unless otherwise noted.		
★R001	46-61457-3	100 ohm, $\pm 10\%$, 6W
★R002	46-61456-3	2.2 ohm, $\pm 10\%$, 8W
R004	64-82395	82K ohm
R006	64-82395	82K ohm
R007	64-27205	2700 ohm, 1/2W
R008	64-33205	3300 ohm, 1/2W
R009	64-39305	39K ohm, 1/2W
R011	46-63284-3	10K ohm
R012	46-63284-3	10K ohm
★R013	46-63347-3	5600 ohm, $\pm 2\%$
★R014	46-63296-3	1K ohm
★R016	46-61450-3	107K ohm, $\pm 1\%$
★R017	64-18905	1.8 ohm, 1/2W
R101	46-63296-3	1000 ohm
R102	64-56095	56 ohm
R103	64-12195	120 ohm
R104	46-63297-3	6800 ohm
R106	46-63287-3	2700 ohm
R107	64-15095	15 ohm
R108	64-15195	150 ohm
R109	46-63297-3	6800 ohm
R111	46-63287-3	2700 ohm
R112	64-82295	8200 ohm
R113	64-27495	270K ohm
R114	46-63294-3	47K ohm
R115	64-22495	220K ohm
R116	64-27495	270K ohm
R117	46-63295-3	5600 ohm
R118	46-63296-3	1000 ohm
R119	64-47295	4700 ohm
R121	64-27495	270K ohm
R122	46-63287-3	2700 ohm
R123	46-63295-3	5600 ohm
R124	46-63307-3	680K ohm
R126	46-61354-3	1000K ohm
R127	46-63296-3	1000 ohm
R129	46-63286-3	2200 ohm
R131	64-33195	330 ohm
R132	68-27005	27 ohm, 1/2W
R133	68-27005	27 ohm, 1/2W
R134	46-63343-3	12 ohm
R150	64-15195	150 ohm
R151	46-63286-3	2200 ohm
R152	64-12195	120 ohm
R153	64-39295	3900 ohm
R154	64-12295	1200 ohm
R156	46-63286-3	2200 ohm
R157	46-63278-3	150K ohm

Schematic Location	Part No.	Description
R159	46-63286-3	2200 ohm
R161	46-63296-3	1000 ohm
R162	64-68395	68K ohm
R163	64-18305	18K ohm, 1/2W
R164	64-39105	390 ohm, 1/2W
R165	64-39105	390 ohm, 1/2W
R200	64-22095	22 ohm
R201	64-15195	150 ohm
R202	64-15295	1500 ohm
R203	64-47005	47 ohm, 1/2W
R204	46-63298-3	100 ohm
R205	46-63293-3	680 ohm
R207	46-63296-3	1000 ohm
R208	46-63259-3	1800 ohm, $\pm 2\%$
R209	64-15295	1500 ohm
★R210	46-63331-3	27K ohm, $\pm 1\%$
R211	64-15295	1500 ohm
R212	46-63284-3	10K ohm
R213	46-63297-3	6800 ohm
R214	46-63288-3	15K ohm
R215	46-63349-3	560K ohm, $\pm 2\%$
R216	64-56195	560 ohm
R217	64-82395	82K ohm
R218	64-33295	3300 ohm
R219	46-61345-3	39K ohm
R220	46-63298-3	100 ohm
R221	64-39295	3900 ohm
R222	64-82295	8200 ohm
R223	64-56195	560 ohm
R224	64-56195	560 ohm
R226	64-82095	82 ohm
R227	46-63285-3	330K ohm
R229	64-18395	18K ohm
R231	64-12395	12K ohm
R232	64-12395	12K ohm
R234	64-18495	180K ohm
R235	46-63296-3	1000 ohm
R236	46-63284-3	10K ohm
R237	46-63299-3	390K ohm
R239	46-63348-3	4700 ohm, $\pm 2\%$
R241	46-61592-3	10K ohm, $\pm 2\%$
R242	46-63347-3	5600 ohm, $\pm 2\%$
R243	64-18395	18K ohm
R244	64-18495	180K ohm
R246	64-18495	180K ohm
R247	46-63289-3	33K ohm
R248	64-12495	120K ohm
R249	46-63307-3	680K ohm
R250	46-61331-3	Thermister, SDT-1000
R251	46-63307-3	680K ohm
R252	46-63297-3	6800 ohm
R254	46-63285-3	330K ohm

Schematic Location
R255
R256
R257
R258
R259
R260
R261
R263
R264
R265
R266
R267
R268
R269
R400
R401
R402
R403
R404
R405
R406
R407
R408
R409
R411
R412
R414
R417
R418
R419
★R420
R421
R422
R423
R425
R426
R427
R428
R430
R433
R434
R436
★R438
★R439
★R440
★R441
★R442
R446
R447
★R448

Schematic Location	Part No.	Description	Schematic Location	Part No.	Description
R255	64-22495	220K ohm	R451	64-27395	27K ohm
R256	46-63288-3	15K ohm	R452	64-12395	12K ohm
R257			R453	64-22495	220K ohm
R258	64-18195	180 ohm	R454	46-63278-3	150K ohm
R259			R455	46-63294-3	47K ohm
R260	46-61584-3	43K ohm	R456	64-68395	68K ohm
R261	64-39195	390 ohm	R457	46-63289-3	33K ohm
R263	46-63284-3	10K ohm	R458	64-82395	82K ohm
R264	46-63287-3	2700 ohm	R459	64-22395	22K ohm
R265	46-63286-3	2200 ohm	R460	46-63303-3	56K ohm
R266			R461	46-61277-3	Thermister, SDT-100
R267	46-63287-3	2700 ohm	R462	64-22195	220 ohm
R268	46-63295-3	5600 ohm	R465	64-15295	1500 ohm
R269	64-15195	150 ohm	R466	64-10005	10 ohm, 1/2W
R400	64-18495	180K ohm	R467	64-12005	12 ohm, 1/2W
R401	46-63286-3	2200 ohm	R468	46-63269-3	820 ohm, 1/2W
R402	46-63297-3	6800 ohm	R469	64-68205	6800 ohm, 1/2W
R403	46-63303-3	56K ohm	R470	46-63296-3	1000 ohm
R404	46-63303-3	56K ohm	R471	64-68205	6800 ohm, 1/2W
R405	64-18395	18K ohm	R476	64-12205	1200 ohm, 1/2W
R406	46-63295-3	5600 ohm	R477	64-10205	1000 ohm, 1/2W
R407	46-63284-3	10K ohm	R478	64-12205	1200 ohm, 1/2W
R408	46-63259-3	1800 ohm	R479	64-10205	1000 ohm, 1/2W
R409	64-22195	220 ohm	★R481	46-63340-3	3300 ohm, ±1%
R411			★R482	46-61452-3	196K ohm, ±1%
R412	46-63296-3	1000 ohm	★POS001	46-61459-3	Posistor, PTH451B02
R414	64-33295	3300 ohm	R701		
R417	46-63295-3	5600 ohm	R702	64-15205	1500 ohm, ±10%, 1/2W
R418	64-27395	27K ohm	R703		
R419	64-12395	12K ohm	R704		
★R420	46-61590-3	100K ohm, ±1%	R705	46-6880-3	15K ohm, 2W
R421	64-12295	1200 ohm	R706		
R422	64-12395	12K ohm	R707	62-12921-4	1.2 ohm, ±10%, 2W
R423	46-63295-3	5600 ohm	R708	64-12505	1200K ohm, 1/2W
R425	64-47295	4700 ohm	R709	64-10505	1000K ohm, 1/2W
R426	64-33295	3300 ohm	R710	64-27405	270K ohm, ±20%, 1/2W
R427	46-63286-3	2200 ohm	R711	64-15505	1500K ohm, 1/2W
R428	64-47225	4700 ohm, 2W	★R901	46-61454-3	160 ohm, 20W
R430	68-82225	8200 ohm, 2W	R902	46-63329-3	68 ohm, ±10%, 1/2W
R433	46-63298-3	100 ohm	★R904	64-33505	3300K ohm, ±20%, 1/2W (Part of Resistor Capacitor Network)
R434	46-63343-3	12 ohm	★R905	64-27205	2700 ohm, ±10%, 1/2W (Included in Deflection Yoke L902)
R436	64-18395	18K ohm	★R1501		
★R438	46-61585-3	18K ohm, ±1%	★thru	64-10605	10M ohm, +150%—0%, 1/2W
★R439	46-61486-3	82K ohm, ±1%	★R1512		
★R440	62-47825-4	0.5 ohm, ±10%, 2W	R1531		
★R441	46-61586-3	80600 ohm, ±1%	thru	64-15595	1500K ohm
★R442	46-63344-3	1000 ohm, ±1%	R1542		
R446	62-56021-4	56 ohm, ±10%, 2W			
R447	64-68905	6.8 ohm, 1/2W			
★R448	46-61587-3	10 ohm, ±10%, 6W			

Sears DIVISION 57 TECHNICAL DATA SHEET TELEVISION

MODEL NO. 564.42161702

WARNING!!

To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

Schematic Location	Part No.	Description
R1543	46-63289-3	33K ohm
R1544	64-39195	390 ohm
R1545	64-22395	22K ohm
R1546	64-39195	390 ohm
R1548	46-61354-3	1M ohm
★ R1550	64-47305	47K ohm, $\pm 10\%$, 1/2W
R1560	64-68205	6800 ohm, 1/2W
R1561	64-68205	6800 ohm, 1/2W
R1562	46-63282-3	100 ohm, 1/2W
R1572	46-63296-3	1000 ohm
R1573	64-10495	100K ohm
R1574	64-47495	470K ohm
R1575	64-10495	100K ohm
R1576	46-61354-3	1000K ohm
R1577	64-47295	4700 ohm
R1578	46-63284-3	10K ohm
R1579	46-63286-3	2200 ohm
R1580	46-63284-3	10K ohm
R1581	46-63286-3	2200 ohm
R1582	64-22395	22K ohm
R1583	46-63298-3	100 ohm
R1584	46-63286-3	2200 ohm
R1585	46-63284-3	10K ohm
★ R1586	64-10605	10M ohm, +150%–0%, 1/2W
R1588	46-63292-3	68 ohm
COILS		
★ L001	46-101100-3	Line Filter
L002	46-101369-3	Peaking Coil, 10 μ H
L151		
L201	46-101158-3	Peaking Coil, 15 μ H
L202	46-101369-3	Peaking Coil, 10 μ H
L203	46-101238-2	Peaking Coil, 100 μ H
L204	46-23186-3	Delayline Coil
L206	46-10812-3	Pulse Width Correct Coil
L207	46-101413-3	Peaking Coil, 5.6 μ H

Schematic Location	Part No.	Description
L208	46-101065-3	Filter Coil
L209		
L400	46-101205-3	Peaking Coil, 4.7 μ H
L401	46-10821-3	Filter Coil
L404	46-101067-3	Peaking Coil, 220 μ H
L405	46-101065-3	Filter Coil
L407		
L408	46-101414-3	Linearity Coil
L406		
L409	46-10793-3	Peaking Coil, 10 μ H
★ L901	46-101421-3	Degaussing Coil
★ L902	46-80707-3	Deflection Yoke
L981	46-101400-3	VHF Antenna Balun (Included in UHF/VHF Antenna Terminal Board)

CAPACITORS

NOTES

All Capacitors $\pm 5\%$ and 50 volts unless otherwise noted with following:

Tolerance of Capacitors are noted with following symbols:

A	+50%–10%	N	$\pm 30\%$
G	$\pm 2\%$	P	+100%–0%
K	$\pm 10\%$	Z	+80%–20%
M	$\pm 20\%$		

Materials of Capacitors are abbreviated as follows:

Elect.	Electrolytic Capacitor
NP. Elect.	Non-Polarized Electrolytic Capacitor
Mylar	Mylar Film Capacitor
M. Mylar	Metallized Mylar Film Capacitor
Polypro	Polypropylene Capacitor
M. Polypro	Metallized Polypropylene Capacitor

★ C001	46-20954-3	M. Mylar,	0.056mfd (M), 125V
★ C002	12-102811-3	Ceramic,	1000pF (M), 1000V
★ C003	46-18433-3	Elect.,	470mfd (A), 180V
C004	46-18366-3	Elect.,	220mfd (A), 10V
C005	46-201061-3	Ceramic,	0.01mfd (P,Z)
C006	46-18334-3	Elect.,	0.47mfd (A), 160V
C101	18-294-5	Elect.,	4.7mfd (A), 25V
C102	18-294-5	Elect.,	4.7mfd (A), 25V
C103	46-20924-3	Ceramic,	39pF
C104	46-201061-3	Ceramic,	0.01mfd (P,Z)
C106	12-180231-3	Ceramic,	18pF
C107	12-180231-3	Ceramic,	18pF

Refer to the Div. 57 Authorized Price List 528 for current selling prices, availability and ordering information.

Service Flash References

Schematic Location	Part No.	Description
C108	46-201061-3	Ceramic, 0.01mfd (P,Z)
C109	18-294-5	Elect., 4.7mfd (A), 25V
C110	46-18370-3	Elect., 10mfd (A)
C111	46-201061-3	Ceramic, 0.01mfd (P,Z)
C112	12-102811-3	Ceramic, 1000pF (P,Z)
C113	46-20926-3	Ceramic, 56pF
C114	12-609231-2	Ceramic, 6pF, ± 0.25 pF
C115	12-209221-3	Ceramic, 2pF, ± 0.25 pF
C116	46-20939-3	Ceramic, 33pF
C117	12-102811-3	Ceramic, 1000pF (P,Z)
C118	46-201061-3	Ceramic, 0.01mfd (P,Z)
C119	46-18480-3	Tantal., 0.33mfd (K), 35V
C120	12-221711-4	Ceramic, 220pF (K)
C121	46-20927-3	Ceramic, 47pF
C122	46-201061-3	Ceramic, 0.01mfd (P,Z)
C123	46-20939-3	Ceramic, 33pF
C124	12-270231-2	Ceramic, 27pF
C125	46-201061-3	Ceramic, 0.01mfd (P,Z)
C126	46-201061-3	Ceramic, 0.01mfd (P,Z)
C127	12-399221-3	Ceramic, 4pF, ± 0.25 pF
C128	46-20685-3	Ceramic, 3pF, ± 0.25 pF
C129	12-101281-6	Ceramic, 100pF
C131	46-201061-3	Ceramic, 0.01mfd (P,Z)
C132	18-50009	Elect., 22mfd (A), 16V
C133	46-20547-3	Ceramic, 0.022mfd (P,Z)
C135	46-201061-3	Ceramic, 0.01mfd (P,Z)
C150	46-18215-3	Elect., 47mfd 16V
C151	46-201061-3	Ceramic, 0.01mfd (P,Z)
C152	46-18215-3	Elect., 47mfd (A), 16V
C153	46-20936-3	Mylar, 6800pF (K)
C156	46-18367-3	Elect., 1mfd (A)
C157	12-391711-6	Ceramic, 390pF (K), 500V
C158	46-18334-3	Elect., 0.47mfd, 160V
C160	12-102811-3	Ceramic, 1000pF (K), 500V
C161	46-18367-3	Elect., 1mfd (A)
C162	46-18453-3	Elect., 10mfd (A), 160V
C163	46-18454-3	Elect., 2.2mfd (A), 160V
C164	46-20881-3	Ceramic, 470pF (K), 500V
C200	46-18366-3	Elect., 220mfd (A), 16V
C201	46-201061-3	Ceramic, 0.01mfd (P,Z)
C202	46-20927-3	Ceramic, 47pF
C203	12-121231-3	Ceramic, 120pF
C204	46-20863-3	Ceramic, 680pF (K)
C205	46-201061-3	Ceramic, 0.01mfd (P,Z)
C206	12-152711-4	Ceramic, 1500pF (K)
C207	46-20863-3	Ceramic, 680pF (K)
C208	46-201061-3	Ceramic, 0.01mfd (P,Z)
C209	46-18234-3	Elect., 0.47mfd (A)
C210	46-18370-3	Elect., 10mfd (A)
C211	18-294-5	Elect., 4.7mfd (A), 25V
C212	46-20945-3	Mylar, 0.068mfd (K)
C213	46-201061-3	Ceramic, 0.01mfd (P,Z)
C214	46-18234-3	Elect., 0.47mfd (A)
C216	12-820231-3	Ceramic, 82pF

Schematic Location	Part No.	Description
C217	12-121231-3	Ceramic, 120pF
C218	12-151231-8	Ceramic, 150pF
C219	46-20939-3	Ceramic, 33pF
C220	12-101212-3	Ceramic, 100pF
C221	46-20927-3	Ceramic, 47pF
C222	46-18234-3	Elect., 0.47mfd (A)
C223	46-201061-3	Ceramic, 0.01mfd (P,Z)
C224	18-267-5	Elect., 10mfd (A), 16V
C226	46-201061-3	Ceramic, 0.01mfd (P,Z)
C227	46-201061-3	Ceramic, 0.01mfd (P,Z)
C228	12-102811-3	Ceramic, 1000pF (K)
C229	46-20924-3	Ceramic, 39pF
C230	46-18367-3	Elect., 1mfd (A)
C231	12-820231-3	Ceramic, 82pF
C233	46-201061-3	Ceramic, 0.01mfd (P,Z)
C234	46-20863-3	Ceramic, 680pF (K)
C235	12-390231-4	Ceramic, 39pF
C236	46-20863-3	Ceramic, 680pF (K)
C237		
C238		
C239	12-152711-4	Ceramic, 1500pF (K)
C241		
C247	12-121231-3	Ceramic, 120pF
C251		
C252	12-102811-3	Ceramic, 1000pF
C253		
C274	46-20868-3	Mylar, 0.1mfd (M)
C400	46-18367-3	Elect., 1mfd (A)
C401	12-220231-4	Ceramic, 22pF (K), 500V
C402	46-20729-3	Mylar, 0.022mfd (K)
C403	46-20674-3	Mylar, 0.027mfd (K)
C404	46-20875-3	Mylar, 0.01mfd (K)
C405	29-221711	Ceramic, 220pF (K)
C408	18-294-5	Elect., 4.7mfd (A), 25V
C409	46-18434-3	NP. Elect., 1mfd (N), 25V
C410	46-18366-3	Elect., 220mfd (A), 16V
C411	46-201177-3	Polypro., 5600pF (G)
C412	46-20875-3	Mylar, 0.01mfd (K)
C413	12-222711-6	Ceramic, 2200pF (K), 500V
C414	46-20881-3	Ceramic, 470pF (K), 500V
C415	46-20957-3	Ceramic, 470pF (K)
C416	46-18334-3	Elect., 0.47mfd (A), 160V
C417	46-18215-3	Elect., 47mfd (A), 16V
★C418		
★C419	46-20986-3	Ceramic, 560pF (K), 2000V
★C421	46-201054-3	Ceramic, 2700pF (K), 2000V
★C422		
★C423	46-201174-3	Polypro., 5600pF, 800V
★C424		
★C425		
C429	46-20881-3	Ceramic, 470pF, 500V

Schema Location	
C434	
C435	
C436	
C437	
C438	
C439	
★C440	
C441	
★C442	
C443	
C444	
C445	
C446	
C447	
C448	
C449	
C450	
C451	
C452	
★C453	
★C454	
C455	
C456	
C700	
C701	
★C900	
C980	
C1500 thru C1509	
C1510 thru C1519	
C1520 thru C1529	
C1530 thru C1539	
C1540 thru C1549	
C1550 thru C1559	

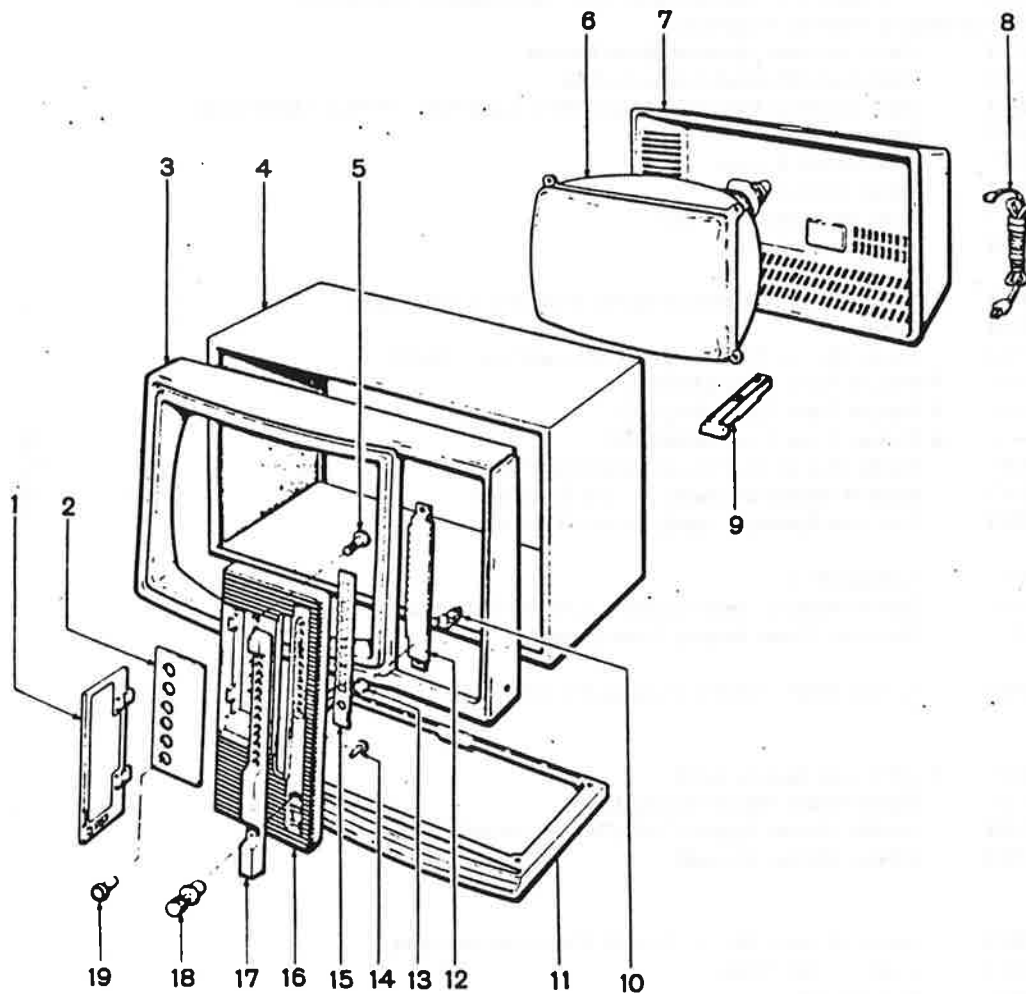
	Schematic Location	Part No.	Description
	C434	46-18244-3	Elect., 1mfd (A), 160V
	C435	46-18227-3	Elect., 22mfd (A), 25V
	C436	18-50009	Elect., 22mfd (A), 16V
	C437	46-18334-3	Elect., 0.47mfd (A), 160V
	C438	46-201019-3	Polypro., 0.033mfd (K), 200V
	C439	18-559-5	Elect., 220mfd (A), 25V
	★C440	46-18453-3	Elect., 10mfd (A), 160V
	C441	46-18429-3	Elect., 4.7mfd (A)
	★C442	46-18483-3	Elect., 33mfd (A), 160V
	C443	46-20931-3	Mylar, 0.015mfd (K)
	C444	46-20945-3	Mylar, 0.068mfd (K)
	C445	46-20574-3	Mylar, 0.27mfd (K)
	C446	46-20963-3	Mylar, 0.082mfd
	C447	46-20963-3	Mylar, 0.082mfd
	C449	46-18481-3	NP. Elect., 220mfd (N), 25V
	C450	18-537-5	Elect., 33mfd (A)
	C451	46-18354-3	Elect., 100mfd (A), 160V
	C452	46-20979-3	Polypro., 0.056mfd (K), 200V
	★C453	46-201039-3	Polypro., 0.27mfd, 200V
	★C454	46-20995-3	Polypro., 0.15mfd, 200V
	C455	46-18418-3	Elect., 4.7mfd (A), 160V
	C457	46-20881-3	Ceramic, 470pF (K), 500V
	C701	46-18418-3	Elect., 4.7mfd (A), 250V
	C703	46-201021-3	Ceramic, 1000pF (P), 2000V
	★C901	46-201075-3	M. Polypro., 1000pF (M), 125V (Part of Resistor-Capacitor Network)
	C981	46-20859-3	Ceramic, 4pF, ±0.25pF, (Included in UHF/VHF Antenna Terminal Board)
	C1501 thru C1512	12-222711-6	Ceramic, 2200pF (K)
	C1513	46-20729-3	Mylar, 0.022mfd (M)
	C1515	46-201061-3	Ceramic, 0.01mfd (P,Z)
	C1516	46-18227-3	Elect., 22mfd (A), 25V
	C1517	12-102811-3	Ceramic, 1000pF (P), 500V
	C1525	46-201061-3	Ceramic, 0.01mfd (P,Z)

Schematic Location	Part No.	Description
VARIABLE RESISTORS		
★VR001	46-24453-3	+120V Adjust. 3K ohm,
VR101	46-24555-3	RF AGC 5K ohm,
VR102	46-24456-3	IF AGC 10K ohm,
VR202	46-24794-3	Sub Tint 100K ohm,
VR203	46-24794-3	Sub Color 100K ohm,
VR204	46-24455-3	Bright Level Adjust. 20K ohm,
VR207	46-24634-3	GCC 50K ohm,
VR208	46-24800-3	Blue Bias 10K ohm,
VR209	46-24661-3	Blue Drive 200 ohm,
VR211	46-24800-3	Green Bias 10K ohm,
VR212	46-24661-3	Green Drive 200 ohm,
VR213	46-24800-3	Red Bias 10K ohm,
VR400	46-24456-3	Sub Horiz. Hold. Adjust. 10K ohm,
VR401	46-24680-3	5K ohm, Horiz. Hold
VR403	46-24680-3	Vert. Size 200 ohm,
VR405	46-13240-3	Focus Adjustment
VR701	46-24801-3	4M ohm, Screen
★VR901	46-24802-3	50K ohm, Vert. Hold
★VR902	46-24799-3	50K ohm, Volume Control
★VR903		(Includes SW901-Pull-On/Switch)
★VR904	46-24782-3	10K ohm, Contrast, Tint and Color
★VR906		
★VR907	46-24687-3	500 ohm, Brightness
VR1501 thru VR1512	46-24761-3	Channel Pre-Set Controls (Fine tuning and Band Switches)
DIODES		
★D001	46-86499-3	ERC04-06, RM2A or RA-2A
D101		
D102		
D103		
D151		
D152		
D201	46-86309-3	1S2076, 1S1555, MA150 or 1S2473
D202		
D203		
D207		
D400		
D405		
D407		

WARNING!!

To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

CABINET EXPLODED VIEW PARTS LIST



Key No.	Part No.	Description
	L46-38611-3	Owner's Manual
	82-304-0	UHF Loop Antenna
	46-8256-3	VHF Telescoping Antenna Assembly
	46-8258-3	** VHF Telescoping Antenna (2 used)
	46-21508-3	** VHF Telescoping Antenna Base
	46-23179-3	** Twin Lead Wire with Terminals
	46-57315-3	** Screw, 3 x 8mm (2 used), VHF Telescoping Antenna mtg.
	** Part of VHF Telescoping Antenna Assembly	
	46-52621-3	Knob, Adaptor, Channel Band Switch
	46-52777-3	Tab Sheet, Channel Indicator 2-83
1	46-21456-3	Door (without INSTRUCTION SHEET and AFC DEFEAT BUTTON)
	46-40185-3	Instruction Sheet
	52-4000-0	AFC Defeat Button
	46-49168-3	Hinge (2 used)
2	46-40270-3	Controls Indication Plate
3	46-40187-3	Front Escutcheon
	46-57424-3	Screws, 4mm x 18mm (8 used), Front Escutcheon mtg.
4	46-42381-3	Cabinet
5	46-52618-3	Knob, (Color, Tint, Bright., Cont., and Vert. Hold)
6	_____	★ Picture Tube Type 510NFB22
	_____	★ Picture Tube Type 19VJYP22
	_____	★ Picture Tube Type 19VJXP22
	46-2898-9	Wedge (Kit of 3), Fixing Deflection Yoke
	46-58292-3	Rubber Washer (4 used), Picture Tube mtg.
	46-56100-3	Nut with Spring (4 used), Picture Tube mtg.
7	42-2204-0	Cabinet Back
	46-57304-3	Screw, 4mm x 12mm (5 used), Cabinet Back mtg.
	22-600-0	Retainer, Power Supply Cord (2 used)
	46-57304-3	Screw, 4mm x 12mm (2 used), Retainer mtg.
8	46-2376-3	★ AC Power Supply Cord
	46-4545-3	Strain Relief, Power Supply Cord
	46-22514-3	Holder, Power Supply Cord (Cabinet Inside)
9	46-49178-3	Chassis Holder (2 used)
	46-57304-3	Screw, 4mm x 12mm (2 used), Chassis Holder mtg.
10	46-22515-3	Light Sensor Holder
11	46-5016-3	Cabinet Base
12	46-21457-3	Channel Indicator Cover - B
13	46-21458-3	Light Sensor Cover
14	39-1000-3	Shaft, AFC Defeat Switch
15	46-4878-3	Channel Indicator Cover - A
16	46-40272-3	Front Panel
	46-57152-3	Screw, 4mm x 10mm (6 used), Front Panel mtg.
	46-11267-3	Base, Sound Output Trans.
17	46-40190-3	Channel Touch Button Base
	46-57354-3	Screw, 3mm x 8mm (3 used), Channel Touch Button Base mtg.
18	46-52682-3	Knob, Pull-on/Volume
19	46-52615-3	Knob, One Button Color

CAUTION: Parts identified by a STAR (★) are critical safety related components. For continued safety and X-Ray Radiation protection replace ONLY with exact factory Authorized Parts.

INSTALLATION AND SERVICE ADJUSTMENTS

ANTENNA CONNECTIONS

This receiver is designed for UHF/VHF reception. Individual 300 ohm inputs are provided for UHF and VHF antenna leads.

When using a UHF or VHF antenna only, or both, connect the transmission line(s) to the proper antenna terminals at the rear of the receiver.

GENERAL ADJUSTMENTS

In the majority of cases, a color television receiver will need only slight touch-up adjustment upon installation. Check the basic adjustments such as +120 volt supply, vertical size, AGC, horizontal oscillator, and focus control. Observe the picture for good black and white detail without objectionable color shading. If color shading is evident, demagnetize the receiver by slowly moving a degaussing coil in a circular motion around the faceplate of the picture tube and sides of cabinet, then slowly remove the coil to a distance of six feet from the receiver before disconnecting it from the AC source.

CIRCUIT PROTECTION

A fuse (4A) is included in the AC line and fuse (0.4A) is included in the +120V DC line. These fuses are located on main signal board and MUST be replaced by the proper fuse (See Parts List).

★★ +120V POWER SUPPLY ADJUSTMENT

1. Tune receiver to an active channel and synchronize picture. Set OBC button to OFF (OUT) position. Adjust Brightness and Contrast controls to minimum.
2. Connect a DC meter to "TP1" on main signal board and ground.
3. Adjust +120V adjustment control (VR001) on main signal board for +120 volts DC.

HORIZONTAL OSCILLATOR ADJUSTMENT

1. Tune receiver to an active channel and synchronize picture. Set horizontal hold control to the mechanical center of its range.
2. Ground terminal "TP40" on main signal board with a jumper lead.
3. Adjust Sub Horiz. Hold adjustment (VR400) on main signal board to momentarily synchronize picture.
4. Remove jumper lead.

VERTICAL CENTERING ADJUSTMENT

Before attempting vertical centering adjustment, set vertical and horizontal hold controls for a properly synchronized picture. Vertical centering can be adjusted by connecting vertical centering tip to any one of three terminals on main signal board.

FOCUS ADJUSTMENT

Adjust focus control (VR405) for well defined scanning lines.

VERTICAL SIZE ADJUSTMENT

Tune receiver to an active channel and synchronize picture. Adjust Vertical Size control (VR403) for full scan.

AFC FIELD ADJUSTMENT

Push OBC switch OFF and adjust fine tuning for best picture and color. Push OBC switch ON. If tuning slips from correct tuning position, adjust T102 (AFC Centering Trans.) on main signal board for best picture. Check all channels for correct tuning with OBC ON.

BRIGHTNESS LEVEL ADJUSTMENT

NOTE: Before adjust Brightness Level, turn the television set on at least five minute or more.

1. Disconnect any antenna leads from UHF/VHF antenna terminal.
2. Connect VOM (+) lead to terminal "TP51" and (-) lead to terminal "TP50" on main signal board. Set VOM for 1.5 ~ 3V range.
3. Set OBC button to OFF (OUT) position. Set Color and Contrast controls for minimum, Brightness control for maximum.
4. Tune receiver to unused UHF channel (Set Fine Tuning control for only snow picture appears on the screen).
5. Adjust Bright. Level adjustment (VR204) for 0.41 volts.

Tune receiver in active channel and make sure that picture does not bloom. If necessary, readjust this control slightly for best brightness.

GRAY SCALE AND TRACKING ADJUSTMENT

1. Set green (VR212) and blue (VR209) drive controls on main signal board to mid position. Set blue (VR208), green (VR211) and red (VR213) bias controls to minimum (fully counterclockwise).
2. Set screen control (VR701) on picture tube socket board to minimum (fully counterclockwise, see from rear of the receiver).
Connect sub screen adjustment tip on picture tube socket board to "HI" position.
3. Ground terminal "TP52 (M4)" on main signal board through resistor 4700 ohms. Ground terminal "TP39" on main signal board through resistor 360 ohms.
Disconnect service tip on main signal board.
If the brilliant colored line is observed connect sub-screen adjustment tip on picture tube socket board to "Lo" position.
4. Advance screen control clockwise to obtain just visible one colored line. If line will not appear, place this control to maximum (fully clockwise).
5. Advance each bias control to obtain just visible three colored lines.
6. Reconnect Service Tip. Remove resistors of 4700 ohms and 360 ohms.
7. Adjust green and blue drive controls alternately to produce normal black and white picture in highlight areas.
8. Check for proper gray scale tracking at all brightness levels.

NOTE: If gray scale adjustment is made after picture tube replacement, check high voltage and bright level adjustment.

NOTE: ADJUSTMENTS AND TESTING MARKED WITH STARS ★★ ARE RELATED TO X-RADIATION SAFETY. FOR CONTINUED X-RADIATION PROTECTION, ADJUSTMENTS AND TESTING MUST BE PERFORMED PROPERLY.

WARNING!! To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

AGC ADJUSTMENT

NOTE: Do not readjust these controls with weak reception.

1. Tune receiver to the strongest VHF station in the area. Turn OBC button to OFF (OUT) position. Set Color control for minimum.
2. Turn RF AGC Control (VR101) on main signal board in the direction which causes snow to appear, then in the opposite direction until the snow just disappears.
3. Adjust IF AGC Control (VR102) on main signal board for optimum contrast.

SOUND ADJUSTMENT

1. Set OBC Button to OFF (OUT) position.
2. Tune receiver to an active channel and fine tune to obtain best picture.
3. Adjust T151 (Sound Detector Trans.) for maximum sound with minimum noise and hum.
4. Tune fine tuning counter-clockwise until the picture appears smeary with little or no color.
5. Adjust T107 (SIF Trans.) for maximum sound with minimum noise and hum.
6. Turn fine tuning clockwise until picture contains interference pattern through best picture condition. Adjust T107 (SIF Trans.) for maximum sound with minimum noise and hum.
7. Readjust step 4, 5, 6, if necessary.

NOTE: Don't adjust the T107 (SIF Trans.) under best picture condition.

★★ HIGH VOLTAGE ADJUSTMENT

NOTE: +120 volt power supply, and Gray Scale and Tracking should be adjusted before attempting High Voltage Adjustment.

1. Tune receiver to an active channel and synchronize picture.
2. Set OBC button to OFF (OUT) position. Set brightness and contrast controls fully counterclockwise.
3. Connect a high voltage probe to second anode lead at picture tube.
4. High voltage must measure between 27.6 ~ 29.1KV. If high voltage is lower than 27.6KV, connect high voltage adjustment tip to "HI" position on main signal board. The high voltage will increase approximately 0.4KV. If high voltage is higher than 29.1KV, connect the tip to "LOW" position.

3.58 MHz SUB CARRIER OSCILLATION ADJUSTMENT

1. Connect Frequency Counter to terminal "TP31" on main signal board. Connect 0.47mfd (50V) between terminals "TP30" and "TP32" (ground).
2. Adjust Coil T201 for 3.579545 MHz.

ONE BUTTON COLOR

1. Tune receiver to an active color channel. Set Brightness and Contrast controls to maximum position.
2. Set OBC button to OFF (OUT) position. Adjust Color (VR906) and Tint (VR904) controls for proper color intensity and natural skin tones.
3. Set OBC button to ON (IN) position. Connect jumper lead between terminal P1 to N7 on main signal board. Adjust sub color (VR203) and sub tint (VR202) controls for proper color intensity and natural skin tones. Repeat steps 2 and 3.
4. Check color intensity and skin tones with OBC button ON and OFF at every active color channels.

GCC ADJUSTMENT

1. Connect color bar generator to antenna terminal. Connect scope to terminal "TP38" on main signal board. Turn GCC control (VR207) on main signal board fully counterclockwise.
2. Set OBC button to OFF (OUT) position. Set TINT control to mechanical center of its rotation.
3. Set COLOR CONTROL for waveforms of 3 volts P-P.
4. Adjust GCC control (VR207) for waveforms of 2 volts P-P.

★★ High Voltage Hold-Down Test

The high voltage hold-down circuit check is indispensable for the final check in servicing. Check should be done as following steps.

1. Connect TV set to AC line (120V) and turn TV set on.
2. Set OBC button to OFF (OUT) position and adjust brightness and Contrast controls for minimum picture brightness.
3. Temporarily short terminals B2 to B6 on main signal board with short jumper lead.
4. Receiver should shutdown losing raster or resulting in no usable picture with loss of high voltage when AC line voltage is raised up to 130V with C418/C419 connected or disconnected. If receiver does not shutdown, a malfunction is indicated and its cause must be found and corrected.
5. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the hold-down circuit is functioning properly.
6. To obtain picture again, temporarily turn the receiver off and then turn it on.

NOTE: ADJUSTMENTS AND TESTING MARKED WITH STARS ★★ ARE RELATED TO X-RADIATION SAFETY. FOR CONTINUED X-RADIATION PROTECTION, ADJUSTMENTS AND TESTING MUST BE PERFORMED PROPERLY.

PURITY AND CONVERGENCE ADJUSTMENT

CAUTION: Convergence and Purity have been factory aligned. Do not attempt to tamper with these alignments. However, the effects of adjacent receiver components, replace picture tube or deflection yoke, or through inadvertent loosening of the lock ring may require the need to readjust purity and convergence. If adjustment is required the adjustments should be made in the following sequence.

PURITY ADJUSTMENTS

1. Place the picture tube face north or south and demagnetize the picture tube and receiver using an external degaussing coil. When replacing picture tube or deflection yoke, mount deflection yoke and purity-convergence magnets assembly properly, see figures 5 and 6.
2. Turn Red and Blue guns off and provide only Green raster. Rotate Screen control on the Picture Tube Socket Board to fully counterclockwise (raster becomes dark). Rotate Red and Blue Bias controls fully counterclockwise. Slowly rotate Green Bias control clockwise to produce Green raster.
3. Loosen the screw holding the Deflection Yoke and slide the Deflection Yoke backward as far as possible, and remove the 3 Rubber Wedges. Loosen Locking Ring (some models).
4. Rotate and spread the Tabs of the two Purity Magnets to center the vertical green belt in the picture screen. The Purity Magnets are also adjusted to obtain vertical centering of the raster.
5. Slowly slide the Deflection Yoke forward until a uniform green screen is obtained.
6. Check the purity of the red and blue screens for uniformity, turn off other colors to check this (use bias controls). Readjust the yoke position if necessary until all screens are pure.

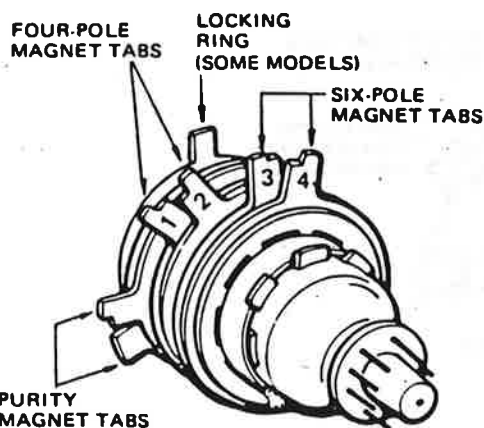


Figure 1 - PURITY AND CONVERGENCE MAGNETS

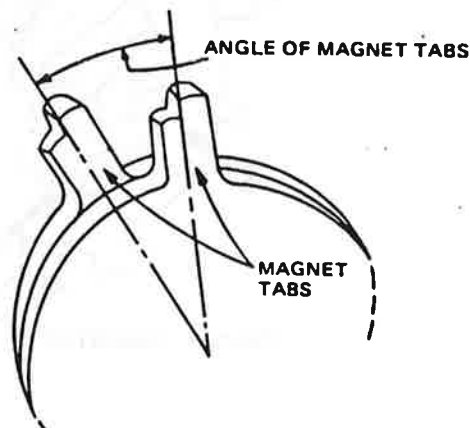


Figure 2 - ADJUSTMENT MAGNET

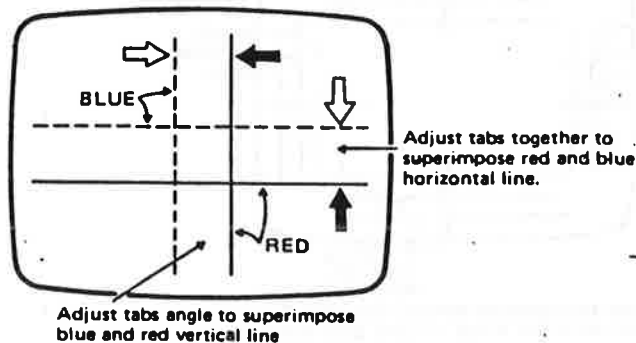


Figure 3 - BLUE AND RED LINE MOVEMENT

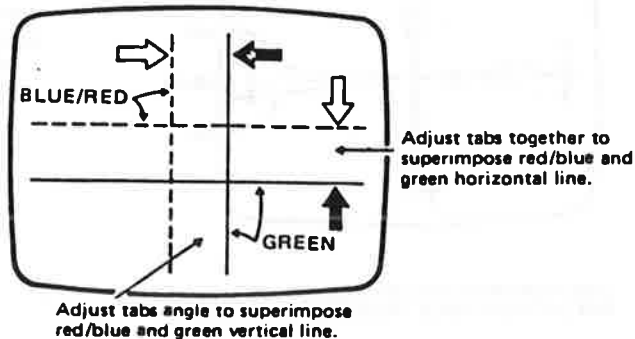


Figure 4 - BLUE/RED AND GREEN LINE MOVEMENT

CONVI

1. Slight
Refer

2. Adjust
outer
of the
Yoke
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CONVERGENCE FOR OUTER AREA

1. Slightly loosen the screw holding the Deflection Yoke. Refer to figure 6.
2. Adjust the Deflection Yoke to converge the detail in the outer area of the picture screen by orbital movement of the front of the Yoke, then secure the Deflection Yoke in appropriate position by putting the wedges as illustrated. Refer to figure 6 and 7. Tighten screw holding the Deflection Yoke.

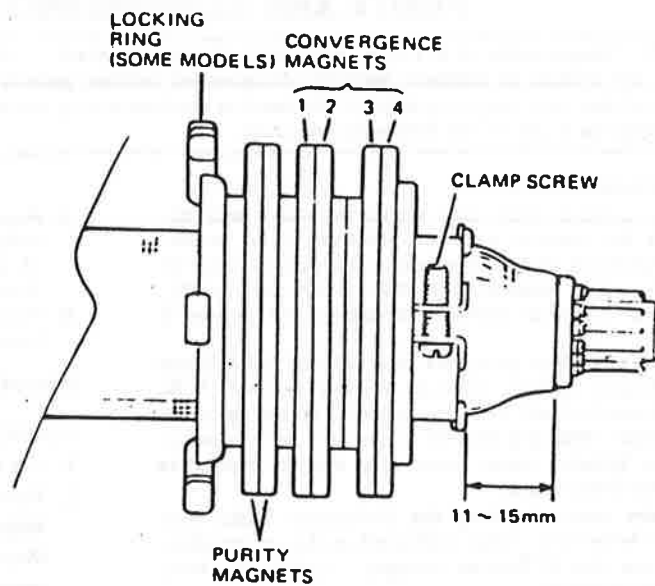


Figure 5 - CONVERGENCE AND PURITY MAGNETS ASSEMBLY POSITIONING

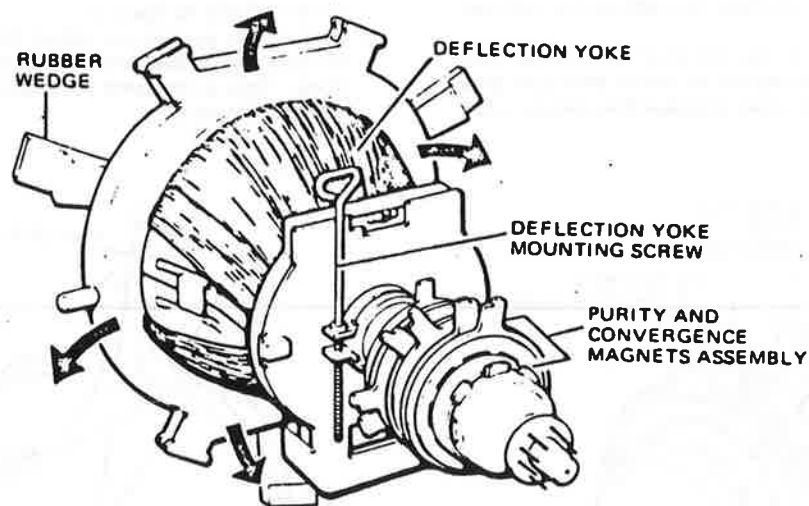
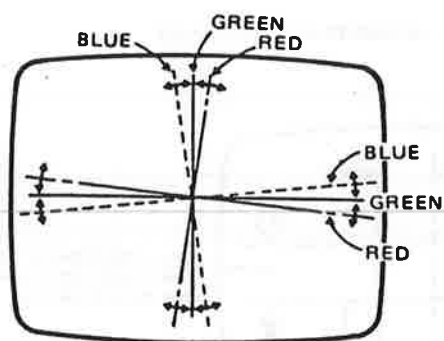
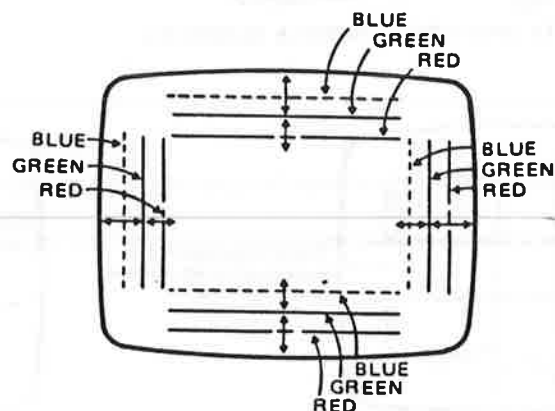


Figure 6 - ADJUSTMENT DEFLECTION YOKE



LINE MOVEMENT WHEN ADJUSTING DEFLECTION YOKE FRONT UP AND DOWN



LINE MOVEMENT WHEN ADJUSTING DEFLECTION YOKE FRONT SIDE TO SIDE

Figure 7 - LINES MOVEMENT

WARNING!!

To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

GENERAL ALIGNMENT INSTRUCTIONS**GENERAL**

Alignment is an exacting procedure and should be undertaken only when necessary. The test equipment specified, or its equivalent, is required to properly perform the alignment procedures which are outline on the following pages:

Use of equipment which does not meet these requirements may result in the inability to properly align receiver. It is essential that the specified bias values are maintained during alignment to insure proper results.

EQUIPMENT TERMINATIONS

Alignment pads are designed for correctly matching equipment to circuit involved. Failure to use proper matching will result in responses which cannot be depended upon as representing the true operation of receiver. Pads should be constructed as compactly as possible with all unshielded leads not in excess of 1" long.

SIGNAL OVERLOAD

Use of excessive signal from the sweep generator can cause overloading of receiver circuits. To determine that this condition is not present and that the response curve is true, turn sweep generator output to zero and then gradually increase it until a response is obtained.

Further increase of sweep generator output should not change the configuration of the response except in amplitude. If the response changes in configuration, such as flattening at the top or dropping below the base line at the bottom, decrease sweep generator output to restore the proper configuration.

The oscilloscope gain should be as high as possible to maintain a usable pattern at the specified peak-to-peak values, thus requiring a lower output from the sweep generator and less chance of overload.

Insertion of markers from the marker generator should not cause distortion of the response.

TEST EQUIPMENT

OSCILLOSCOPE — Lectrotech Model TO-55, Sears Stock No. 68294.

COLOR-BAR/DOT CROSSHATCH GENERATOR — Leader Model LCG-388, Sears Stock No. 68182.

SWEEP MARKER ALIGNMENT GENERATOR — Lectrotech Model SMG-39, Sears Stock No. 68268.

VOLT METER (High Impedance) — RCA Model WV510A, Sears Stock No. 68267.

VOLT-OHM-MILLIAMMETER — Simpson Model 260-6, Sears Stock No. 68402.

HIGH VOLTAGE PROBE — Lectrotech HV40, Sears Stock No. 68241.

FREQUENCY COUNTER — Lectrotech Model FC50 Sears Stock No. 68245.

ISOLATION TRANSFORMER — Forrest Electric Co. DP-160, Sears Stock No. 68235.

INPUT MATCHING PAD — Lectrotech Model PR-16.

DETECTOR PROBE — Lectrotech Model PR-15.

DIRECT PROBE — Lectrotech Model PR-10.

PICTURE I.F. SWEEP ALIGNMENT

- GENERAL** I.F. shield must be in place.
- PRELIMINARY STEPS**
1. Apply +7V I.F. bias to "TP12" on main signal board, connect in series with 2200 ohm resistor.
 2. Set One Button Color Switch to Manual position.
- OSCILLOSCOPE** Connect Scope Vert. input to scope vert. on SWEEP/MARKER GENERATOR. Connect scope external horiz. input to scope horiz. on SWEEP/MARKER GENERATOR.
- SWEEP/MARKER GENERATOR** Connect probe input detector (probe PR-15, direct lead) to "TP16" on main signal board. Connect sweep output thru input matching pad. (probe PR-16, includes this pad in cable) to "TP10" (IC101 terminal 17).
- NOTE:** When connecting probe and leads to the chassis, disconnect the power plug both television receiver and test-equipments from AC line.
- Turn the television receiver and test-equipment on. Tune to 40 ~ 50 MHz sweep. Adjust sweep output for 1V peak to peak display on scope.

STEP		SWEEP/MARKER GENERATOR	ADJUST	REMARKS
1.	41.25 MHz Sound Trap	41.25 MHz marker "ON"	T106	Adjust T106 for minimum 41.25 MHz on scope. (See Fig. 1).
2.	Picture Carrier Alignment	45.75 MHz marker "ON"	T103	Adjust T103 for maximum 45.75 MHz on scope (See Fig. 1).
Connect Sweep Generator output to "IF" on main signal board. Adjust Sweep Output for 1 volt peak to peak display on scope. I.F. overall alignments. (solder 100 ohms resistor to resistor R118 on main signal board in parallel) Connect 100 ohm resistor between "TP13" and "TP14".				
3.	I.F. overall response	41.25 MHz, 41.67 MHz, 42.17 MHz, 42.67 MHz, 45.75 MHz, 47.25 MHz, markers "ON"	T101 T104	Adjust T101, T104 to obtain response shown in Figure 2.
Disconnect all leads and cables.				

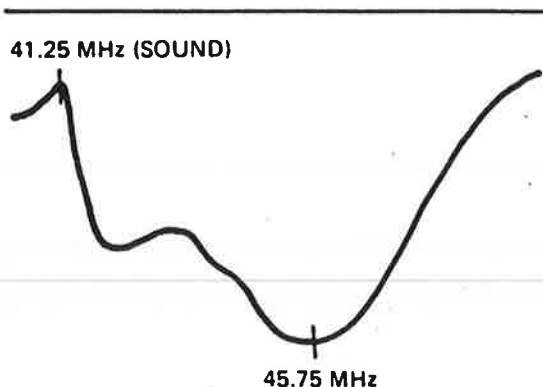


Figure 1 - 1ST I.F. RESPONSE

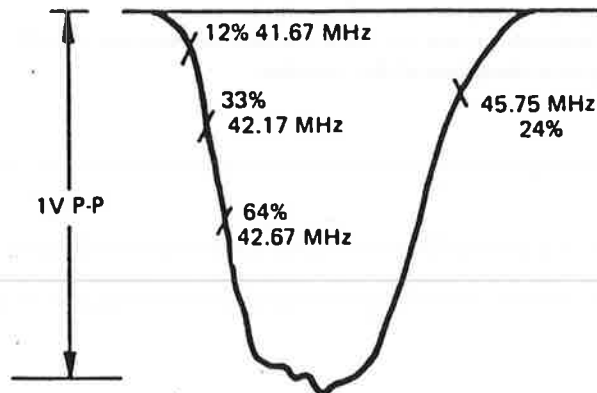


Figure 2 - I.F. OVERALL RESPONSE

AFC ALIGNMENT

GENERAL All I.F. shields must be in place.

PRELIMINARY STEPS

1. Apply +7V I.F. bias to "TP12" on main signal board, connect in series with 2.2K ohm resistor.
2. Set OBC button to ON (IN) position.
3. Ground terminal "M3" with jumper lead on main signal board.

OSCILLOSCOPE Connect scope vert. input to scope vert. on SWEEP/MARKER GENERATOR. Connect scope external horiz. input to scope horiz. on SWEEP/MARKER GENERATOR.

SWEEP/MARKER GENERATOR Connect probe input detector (Probe PR-15, direct lead) to "TP18" (one side of resistor R113) and sweep output to "TP17" (one side of resistor R131) thru input matching pad (Probe PR-16 includes this pad in cable), both on main signal board. Tune generator for a narrow sweep width.

NOTE: When connecting probe and leads to the chassis, disconnect the power plug both television receiver and test-equipments from AC line.

Turn the television receiver and test-equipment on. Adjust sweep output for 3.5 volt peak to peak display on scope.

STEP		SWEEP/MARKER GENERATOR	ADJUST	REMARKS
1.	AFC detector transformer	45.75 MHz	T102	Adjust T102 to position 45.75 MHz marker is just on reference level line. (See Fig. 3)

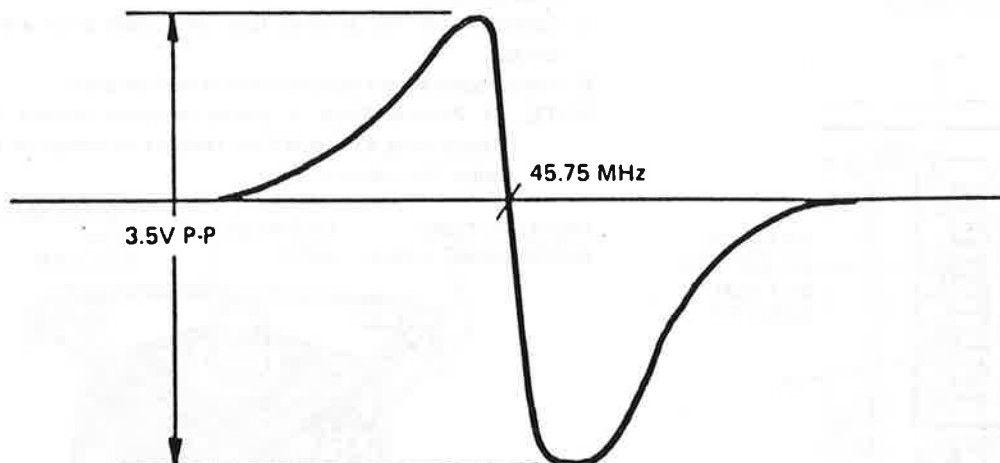


Figure 3 - AFC RESPONSE

MECHANICAL DISASSEMBLIES

CABINET BACK REMOVAL

1. Refer to Figure 1 and remove screws-A (7 screws.)
2. Pull cabinet back off and separate the UHF-VHF antenna terminal from cabinet back, then remove cabinet back completely.

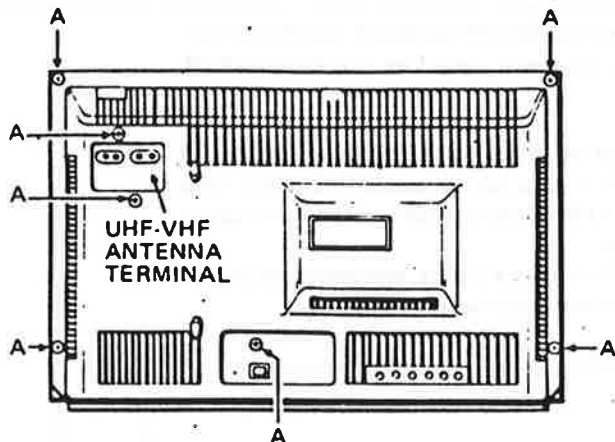


Figure 1 - CABINET BACK REMOVAL

SERVICE HINTS

For testing or servicing TV chassis, pull TV chassis back. Refer to Figure 3. Push the chassis locks out on both sides of the chassis and pull out chassis until it stops.

TUNING AND CONTROLS UNIT REMOVAL

1. Remove Cabinet Back, refer to Cabinet Back Removal.
2. Pull off ONE BUTTON COLOR knob.
3. Refer to Figure 2. Pull off Channel Selection Button wire tip. Remove screws-A (4 screws), then remove Tuning and Controls unit from cabinet.

TUNING AND CONTROLS UNIT

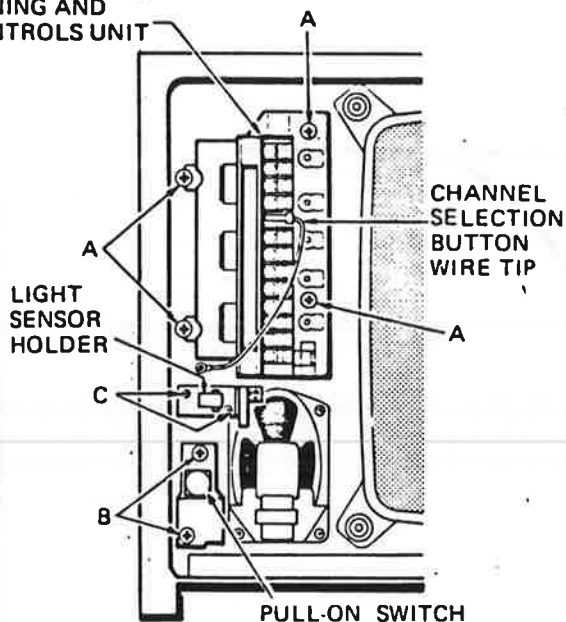


Figure 2 - TUNING AND CONTROLS UNIT REMOVAL

CHASSIS REMOVAL

1. Remove "Cabinet Back" and "Tuning and Controls unit", refer to "Cabinet Back Removal" and "Tuning and Controls unit Removal".
2. Pull off Pull-On/Volume knob. Refer to Figure 2 and remove screws-B (2 screws), remove Pull-On Switch Controls Bracket.
3. Refer to Figure 2 and remove screws-C (2 screws), remove light sensor holder.
4. Disconnect degaussing coil socket, picture tube socket, deflection yoke socket, speaker socket, 2nd anode lead and picture tube grounding lead.
5. Refer to Figure 3. Push the chassis locks outward (a lock is provided on each side of the chassis bottom). Then pull out the chassis from cabinet, and remove chassis completely.

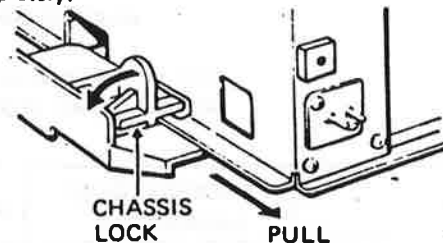


Figure 3 - CHASSIS REMOVAL

PICTURE TUBE REMOVAL

CAUTION; Do not disturb the deflection yoke or magnet assembly on the CRT neck. Care must be taken to keep these assemblies intact.

1. Remove chassis, refer to Chassis Removal Instructions.
2. Place cabinet front face down on a soft surface.
3. Remove four nuts with washers securing picture tube to cabinet front.
5. GENTLY lift out picture tube and place it on a soft surface.
6. Install replacement picture tube in reverse order.

NOTE: If Picture Tube is being replaced, mount the Degaussing Coil and Coil Holders properly on the tube. See illustration.

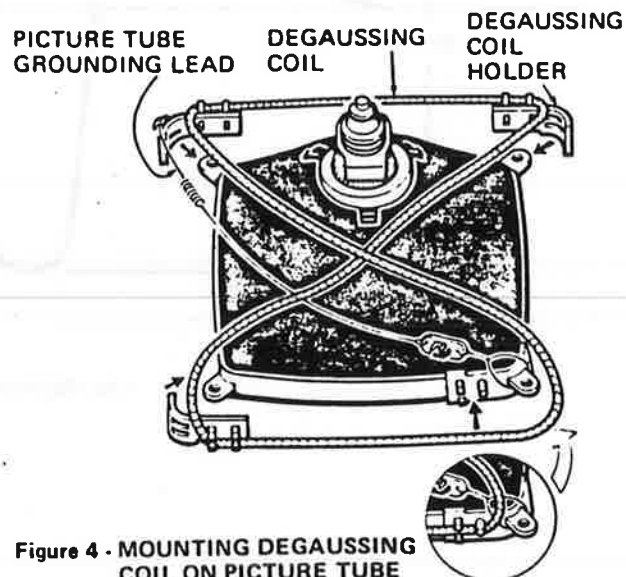


Figure 4 - MOUNTING DEGAUSSING COIL ON PICTURE TUBE

WARNING!! To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

ONE BUTTON COLOR REMOTE CABLE REMOVAL

Refer to Figure 5, push the hook with needle or sharpened tool and pull off from switch. Remove both ends of the cable in the same manner.

CAUTION; Do not bend the cable or twist it.

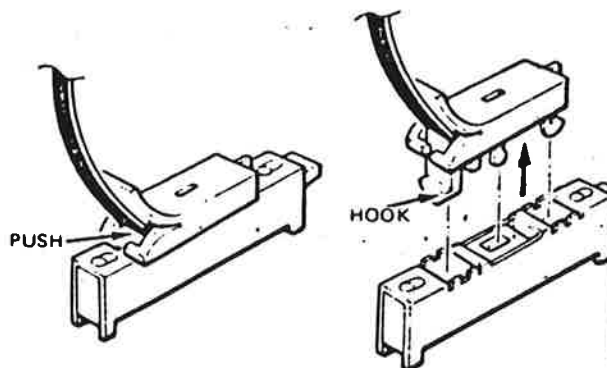


Figure 5 - ONE BUTTON COLOR REMOTE CABLE REMOVAL

MEMORY AND PRE-SET TUNING BOARD DISASSEMBLIES

For testing or servicing on the Memory or Pre-Set Tuning Board, remove circuit board as following steps;

1. Remove Tuning and Controls unit, refer to Tuning and Controls unit removal. Push the Hooks A (2 Hooks) outward and remove Memory Board front from Circuit Board Holder. See Figure 1.
2. Pull off Memory Board from Hooks B (2 Hooks), then remove Memory Board from Circuit Board Holder. To remove both Memory and Pre-Set Tuning Board from Controls Bracket, remove three screws on the bracket.

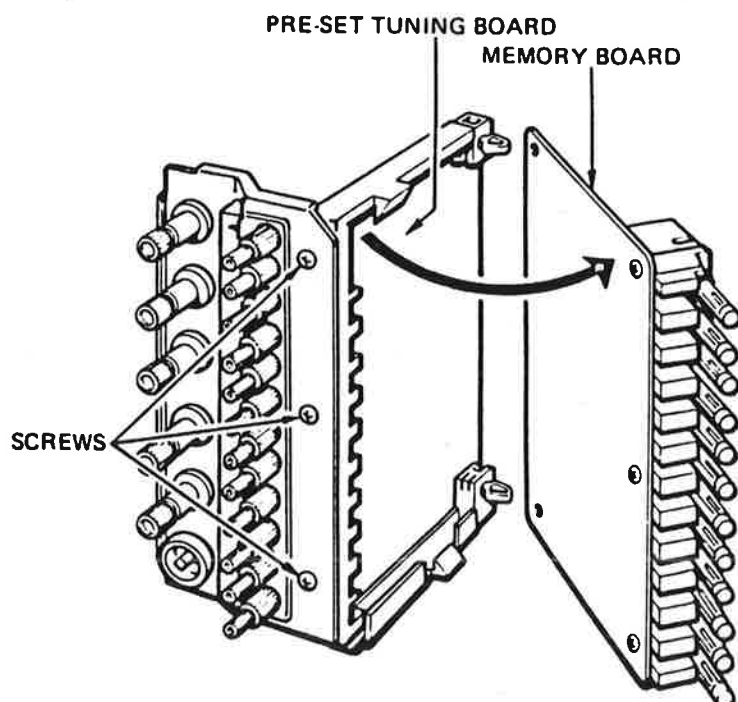


Figure 2

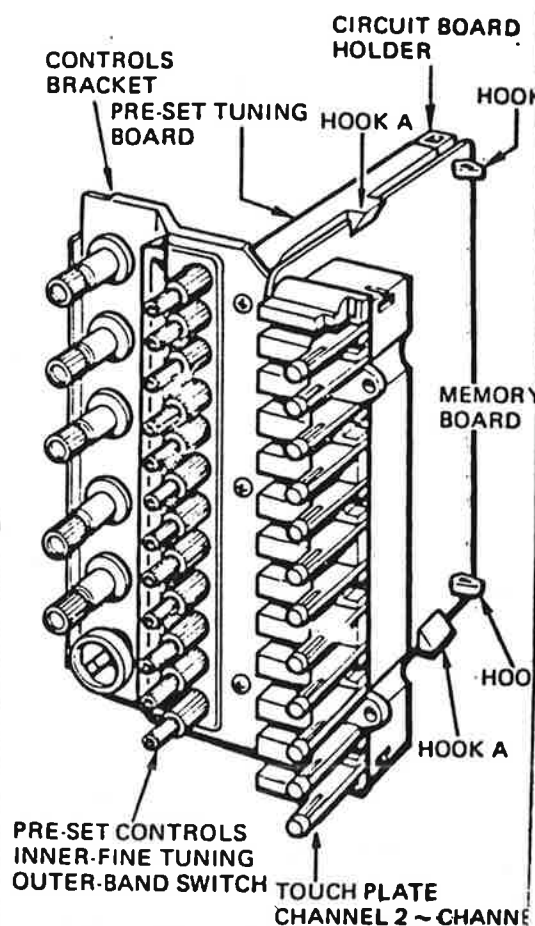


Figure 1



WARNING!!

To protect servicing personnel against electric shock and for continued product safety, read Safety Precautions, X-Radiation precautions and Product Safety Notice on Part 2.

